REMARKS

Claims 1-15 are pending in the application. Claims 1, 2, 3, and 9 are in independent form.

Claims 1, 2, and 4-12 stand objected to because of informalities in the claims. The claims have been amended to correct these informalities and reconsideration of the objection is respectfully requested.

Claim 2 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The Office Action states that in claim 2 the phrase "the pin" lacks proper antecedent basis and should be changed to "the pin means." The claim has been amended pursuant to the suggestion in the Office Action and reconsideration of the rejection is respectfully requested.

Claims 1-6 and 8-12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the Pippins patent. Reconsideration of the rejection under 35 U.S.C. § 102(b), as anticipated by the Pippins patent, as applied to the claims, is respectfully requested. Anticipation has always been held to require absolute identity in structure between the claimed structure and a structure disclosed in a single reference.

In Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 U.S.P.Q. 81 (Fed. Cir. 1986) it was stated: "For prior art to anticipate under §102 it has to meet every element of the claimed invention."

In Richardson v. Suzuki Motor Co., Ltd., 868 F.2d 1226, 9 U.S.P.Q.2d 1913 (Fed. Cir. 1989) it was stated: "Every element of the claimed invention must be literally present, arranged as in the claim."

The Pippins patent discloses an assembly for operatively attaching a wear member to a support structure comprising a pin retainer and pin means. The assembly is different than that of the presently pending independent claims. The design of the assembly disclosed in the Pippins patent also has a number of drawbacks that are overcome by the assembly of the presently pending independent claims. The Pippins patent discloses a threaded bolt pin and insert assembly. The internally threaded insert is placed into the insert-receiving opening in the adapter. A tooth is placed over the adapter and a lock washer is concentrically placed over the pin-receiving opening in the tooth. The bolt pin is then passed through the lock washer and into the pin-receiving hole in the tooth. The bolt pin is screwed into the insert. The bolt pin does not directly contact the adapter. It is screwed into the insert and the insert contacts the adapter. During use, the tooth slides forward on the adapter until the rear edge of the tooth bolt hole contacts the rear face of the bolt head. The forwardly acting force placed on the rear face of the bolt head by the tooth bolt hole edge pushes on and tilts the bolt head slightly forward. The forward-tilting bolt head tilts, and in turn, the bolt shaft, if unresisted, would also tilt forward slightly along with the adapter insert that grips the shaft of the bolt. However, the walls of the adapter insert cavity prevent the adapter insert from tilting. This creates large bending loads in the bolt and compressive loads in the adapter insert in order to resist axial tooth-removal forces applied to the tooth bolt head when digging. As a result, during use of the tooth, both the bolt and insert must each carry significant compressive loads. The digging forces that tend to pull the tooth off the adapter must pass through and be resisted by both the bolt pin and the insert. Each component must carry significant loads and each part has its own risk of failure.

As a result of the design of the assembly disclosed in the Pippins patent, the adapter insert must be made of steel to resist compressive failure due to the high loads applied by the tooth removal digging forces. This has undesirable consequences and the tapped steel inserts and bolt pins experience various kinds of damage. As a result of the large compressive loads carried by the steel-on-steel threads in the bolt/insert assembly, typical damage includes bent bolts and galled threads. When digging in damp conditions, rust forms on the threads joining the steel bolts with the steel insert.

Rust also forms between the steel insert and the steel adapter. When rust is present, the bolts are difficult to unscrew from the inserts and the inserts are difficult to pry out of the adapter insert cavity.

The design of the assembly of the Pippins patent has no capability to draw the tooth tightly onto the adapter. Instead, the assembly requires movement between the tooth and adapter as disclosed at page 7, lines 5 to 35. This movement is excessive in that it allows the tooth to slide back and forth on the adapter under the influence of the digging forces. The only thing that stops the tooth from sliding off the adapter is when the back edge of the tooth bolt hole bangs up against the backside of the bolt head. This impact load on the bolt can cause the bolt to bend or even shear off.

In contrast, the assembly as claimed in the presently pending independent claims has several advantages over the assembly disclosed in the Pippins patent. In the assembly of the presently pending independent claims, only the pin carries significant loads. The pin extends into and directly contacts the wall of the pin receiving cavity in the adapter. The digging forces that tend to pull off the tooth pass directly through the pin into the adapter without passing through any intermediate parts. During use of the assembly of the presently pending independent claims, axial digging forces try to pull the tooth off the adapter. The tooth slides forward slightly on the adapter. The lock pin mounted in the tooth cannot move forward because its tip is braced against the forward wall of the pin-receiving cavity in the adapter. Caught between the forward force on the tooth and the rearward force on the pin, the resilient pin retainer compresses slightly and allows the rear face of the tooth pinhole to move forward slightly and contact the rear face of the pin. With a forward face at the top and a rearward face at the bottom, the pin is placed in bending load. The pin tilts forward slightly, bringing its forward face into contact with the forward face of the tooth pinhole. The pin is then firmly braced in the tooth pinhole and cannot tilt forward any farther. There is now a solid metal-to-metal contact between the tooth and the adapter via the pin allowing the adapter to resist tooth removal forces directly. The pin is sufficiently stiff

to carry these tooth removal loads without yielding and further forward movement of the tooth is prevented.

In the assembly of the presently pending independent claims, the pin retainers in the tooth act only to hold the pin in position. The pin retainers are not required to carry any large compressive loads. The pin retainers can therefore be made from resilient, gall resistant, rust-proof material. All threaded surfaces are lightly loaded and there is no metal-to-metal contact between heavily loaded surfaces such as the metal threads in the assembly of the Pippins patent. Thread galling is therefore not an issue and lock rust-up in damp digging conditions does not occur.

The assembly of the presently pending independent claims is able to draw the tooth tightly onto the adapter. The pin extends into and directly contacts the wall of the pin-receiving cavity in the adapter. The cavity wall and the pin tip have a matching conical shape. The tooth and adapter are made so that there is a deliberate, slight misalignment of the pin's centerline, forward of the centerline of the pin receiving cavity in the adapter. When the pin is screwed down so that the conical pin tip protrudes into this cavity, the pin tip contacts the cavity wall on its forward face. As the screwing action forces the pin tip deeper into the conical adapter cavity, sideway forces are developed on the pin that draws the tooth tightly onto the adapter. Therefore, the problems occurring through use of the assembly of the Pippins patent do not occur when using the assembly of the presently pending independent claims because the assembly includes features that make the assembly more structurally sound and weather resistant. Since the Pippins patent does not disclose the assembly of the presently pending independent claims, the claims are patentable over the Pippins patent and reconsideration of the rejection is respectfully requested.

The remaining dependent claims not specifically discussed herein are ultimately dependent upon the independent claims. References as applied against these dependent claims do not make up for the deficiencies of those references as discussed above. The prior art references do not disclose the characterizing features of the

independent claims discussed above. Hence, it is respectfully submitted that all of the pending claims are patentable over the prior art.

In view of the present amendment and foregoing remarks, reconsideration of the rejections and advancement of the case to issue are respectfully requested.

The Commissioner is authorized to charge any fee or credit any overpayment in connection with this communication to our Deposit Account No. 11-1449.

Respectfully submitted,

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Dated: December 23, 2002

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I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231 on December 23, 2002.

Angel Webb

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

1. An assembly for operatively attaching a wear member to a support structure, wherein the wear member and support structure, respectively, have a first and second passage, which are co-extensive and form a common passage when the wear member is operatively coupled to the support structure, the assembly comprising:

a pin retainer receivable in a non-rotatable position within the first passage; and

pin means insertable within the pin retainer and extending through the first passage and into the second passage for [to] operatively locking the wear member to the support structure, and [the pin means,] in combination with the support structure, for bearing substantially all of the wear member-removal compressive forces during use of the wear member.

2. An assembly for operatively attaching a wear member to a support structure, wherein the wear member and support structure, respectively, have a first and second passage, which are co-extensive and form a common passage when the wear member is operatively coupled to the support structure, the assembly comprising:

a pin retainer receivable in a non-rotatable position within the first passage, the pin retainer being threaded internally; and

pin means having threaded portions corresponding to the threaded portions of the pin retainer, wherein when the pin means is inserted into the pin retainer by the application of torque force, the pin means extends through the first passage and into the second passage for [to] operatively locking the wear member to the support structure, and in combination with the support structure, for bearing substantially all of the wear member-removal compressive forces during use of the wear member.

3. An assembly for operatively attaching a wear member to a support structure, wherein the wear member and support structure, respectively, have a first and second passage, which are co-extensive and form a common passage when the wear member is operatively coupled to the support structure, the assembly comprising:

a pin retainer receivable in the first passage in the wear member, said pin retainer having an outer surface, an inner end and an outer end; and

pin means insertable within the pin retainer and extending through the first passage and into the second passage for [to] operatively locking the wear member to the support structure, and in combination with the support structure, for bearing substantially all of the wear member-removal compressive forces during use of the wear member.

6. The assembly of claim 5, wherein the retaining means comprises a plurality of flat walls on each of the pin retainer and the first passage, which cooperate when the pin retainer is inserted into the first passage to retain the pin retainer in the non-rotational position.

9. A method for locking a wear member to a support structure, wherein the wear member has a first passage and the support structure has a second passage, which are co-extensive when the wear member is operatively coupled to the support structure, comprising the steps of:

inserting a pin retainer into the first passage in the wear member whereby the pin retainer is held in a non-rotatable position;

coupling the wear member to the support structure so that the first and second passages are co-extensive; and

inserting a pin means into the pin retainer by the application of torque force, wherein the pin means extends through the first passage and into the second passage to operatively lock the wear member to the support structure, the pin means, in combination with the support structure, bearing substantially all of the wear member-removal compressive forces during use of the wear member.

13. (New) The assembly of claim 1, wherein the central longitudinal axis of the first passage is forward of the central longitudinal axis of the second passage to allow the pin means to tightly lock the wear member to the support structure.

14. (New) The assembly of claim 2, wherein the central longitudinal axis of the first passage is forward of the central longitudinal axis of the second passage to allow the pin means to tightly lock the wear member to the support structure.

15. (New) The assembly of claim 3, wherein the central longitudinal axis of the first passage is forward of the central longitudinal axis of the second passage to allow the pin means to tightly lock the wear member to the support structure.